

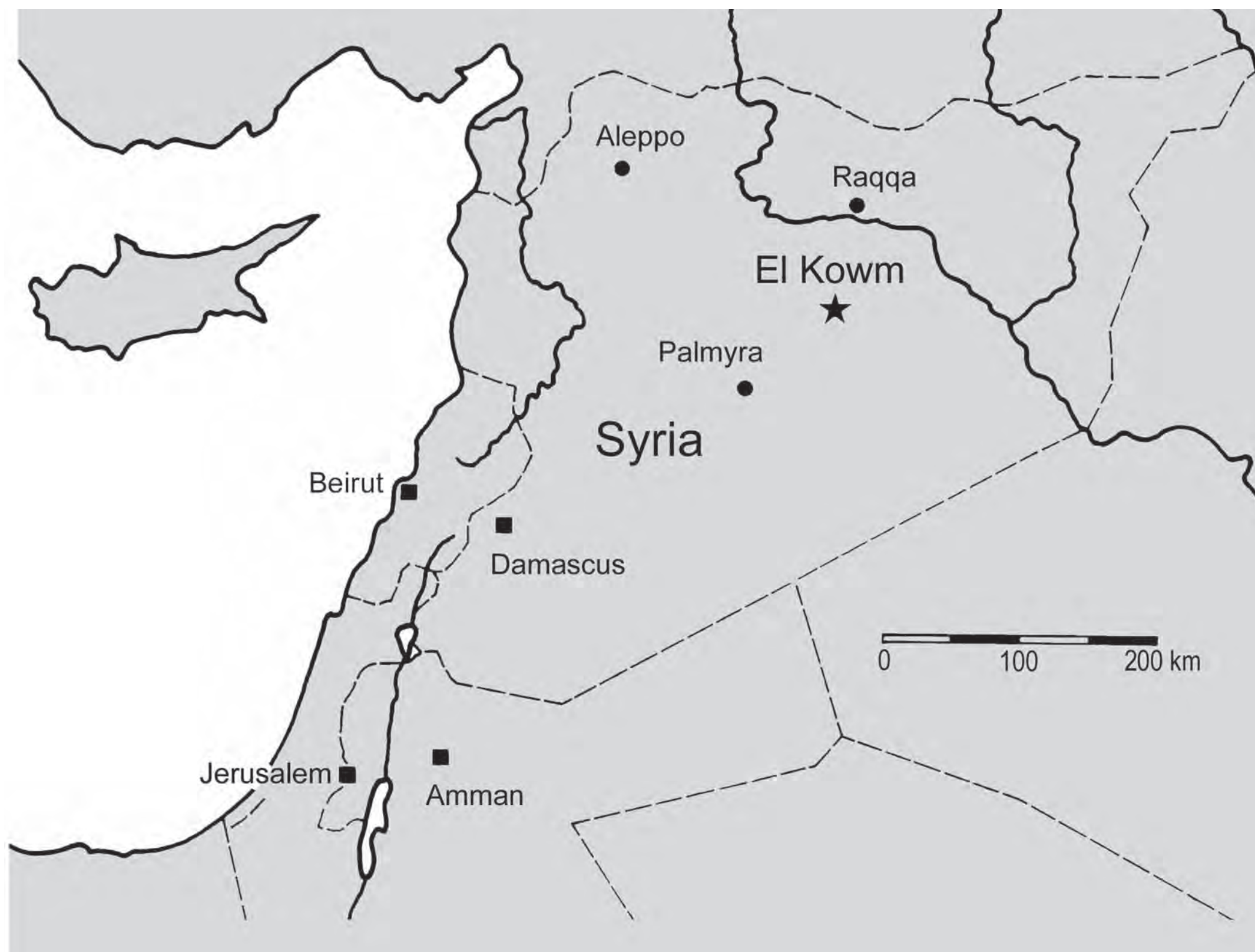
The Palaeolithic site of Hummal and its potential for paleoclimatic Reconstruction

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Introduction

The region of El Kowm, situated in the arid interior of Syria. It is an extraordinary example of continuous human occupation in a steppe environment throughout the Pleistocene. Essential key-resources such as water from artesian springs, lithic raw materials and animals were permanently available, thus human interaction can be inferred in detail throughout time.

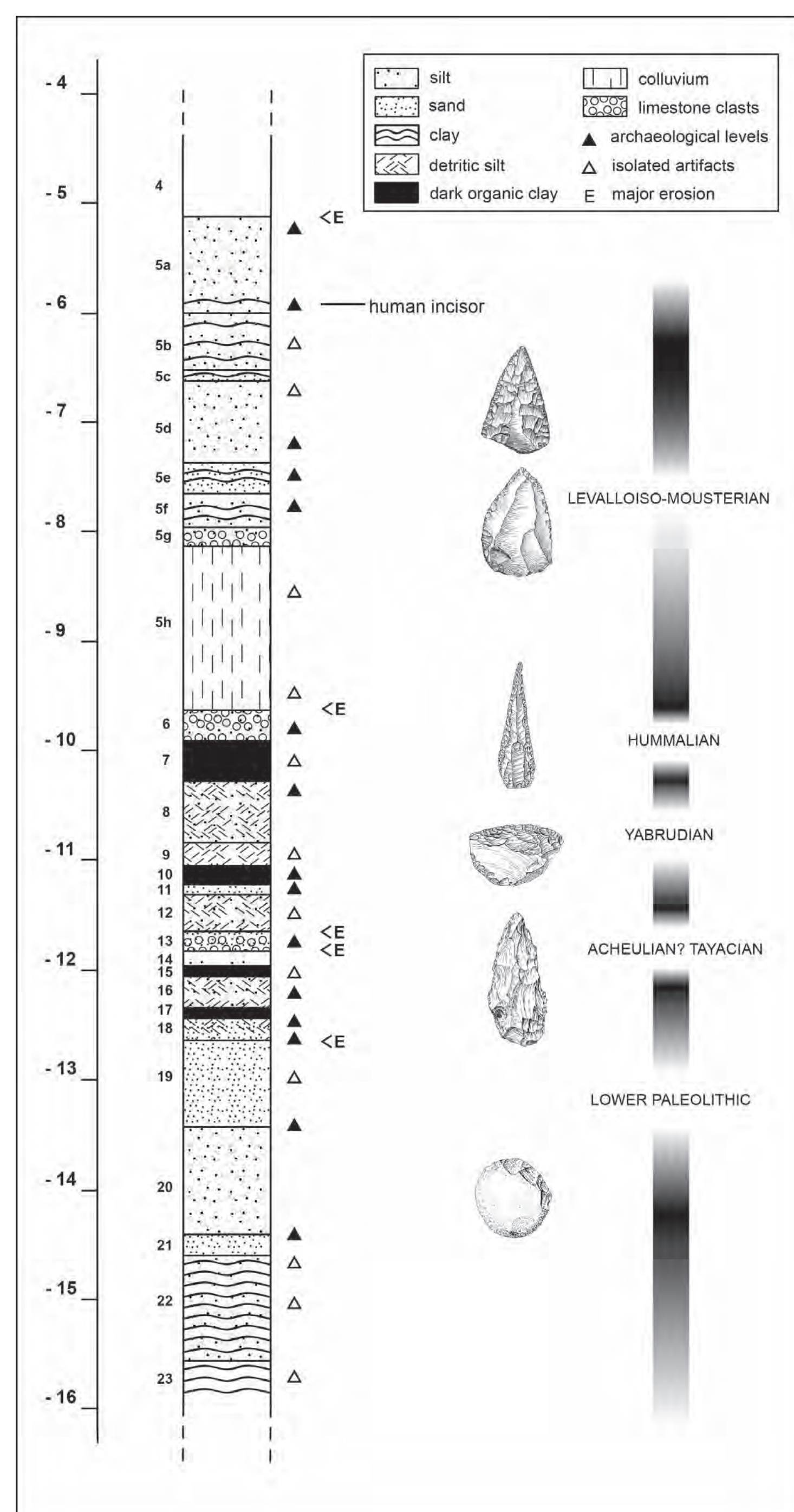
Excavations at the well-site of Hummal were carried out by a joint Syrian-Swiss team (University of Basel and Directorate of Antiquities and Museums, Damascus). At present, the site is 14 m deep and a succession of limnic and terrestrial sediments are exposed. This sequence spans over the entire Pleistocene epoch and encompasses all major Palaeolithic complexes currently known in the Middle East. Preliminary paleomagnetic as well as paleontological results indicate an Early Pleistocene age for the lower part of the sequence, TL-Dates about 250 Ka are present in the lower parts of the Middle Paleolithic layers.



1 Location of the El Kowm area.



2 Aerial view of the site



3 The Palaeolithic sequence of Hummal

Large Mammal Fauna

Pietro Martini and Dr. Peter Schmid, Anthropological Institute & Museum, University of Zurich

The faunal accumulation of Hummal is remarkably constant over the whole sequence. The main taxa recorded are camelids, equids and bovids, in order of importance; other animals are occasional. This association is unique in the Middle East, and therefore sets the climate of Hummal apart from other localities. It suggests that the local environment was very open and dry.

These three groups are represented all over the sequence, implying that the vegetation did not vary significantly. Nevertheless, the relative frequency of the taxa, the succession of the species within the families and the occurrence of some rare animals (such as rhinoceroses and carnivorans) could give interesting clues for a finer climatic reconstruction. Future work will be done on the subject.

Camels are the most abundant group, always representing at least 37% and up to 83% of the identified specimens. Equids are also important, accounting for 50% of the identified specimens in some layers. Bovid are represented by gazelles, buffaloes, oryxes and other antelopes, and account for up to 31% of the specimens.

Small Vertebrates

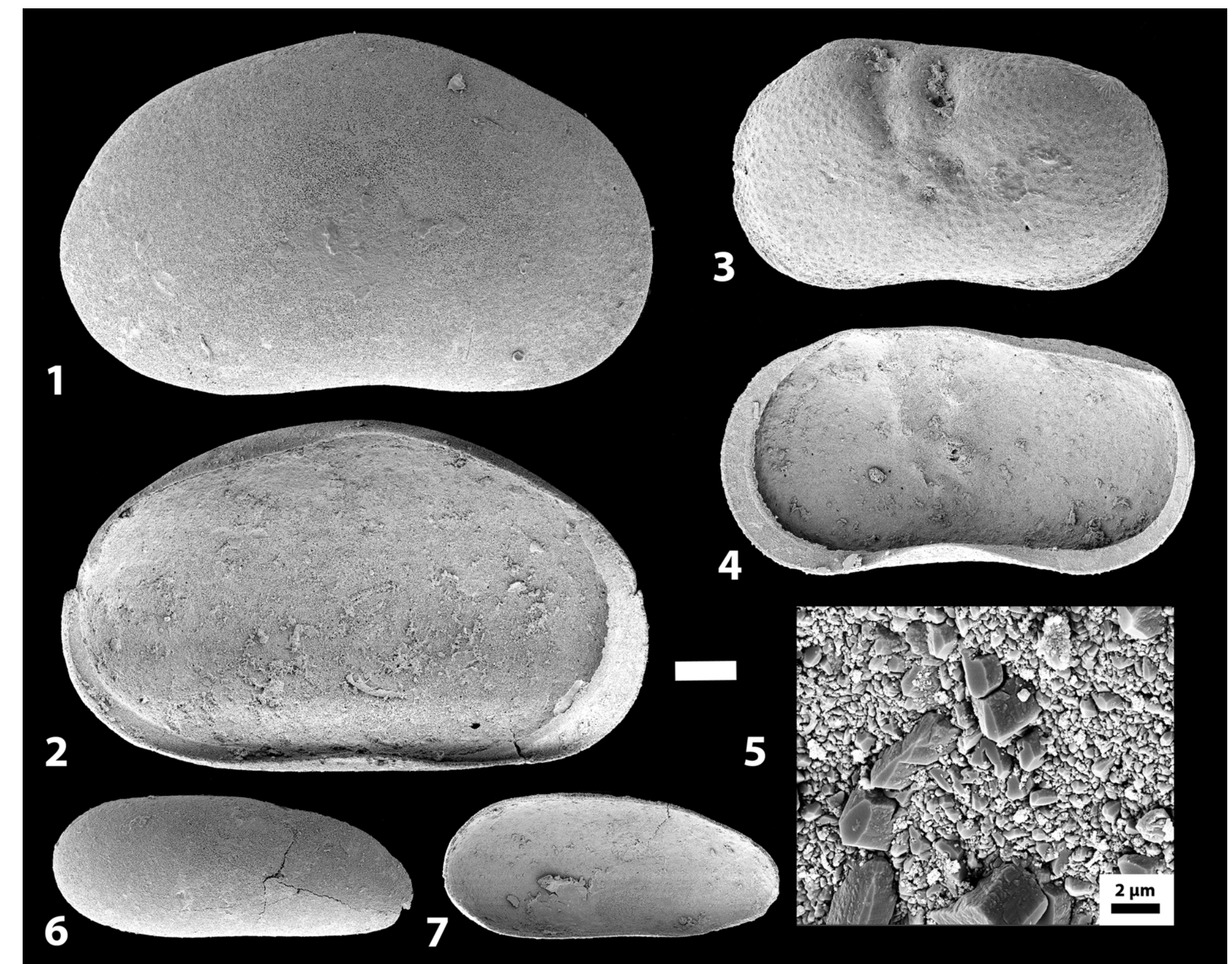
Dr. Lutz Christian Maul, Senckenberg Research Institute, Weimar

A large assemblage of microvertebrate remains was collected in the Lower Paleolithic layers at the bottom of the site. Among the ca. 700 identifiable microvertebrate specimens 28% belong to gerbils (genera *Meriones*, *Dipodillus* and *Psammomys*), 6% to voles (genus *Ellobius*), 1 % to shrews (*Crocidura*) and 5 % to lizards. Specific determination is still ongoing. However, already from these generic identification steppe to semi-desert conditions can be inferred. Among micromammals, arvicolids usually serve as the best biostratigraphic indicators. The only arvicolid in the fauna thus far, *Ellobius* shows traits that can place the fauna older than the late Middle Pleistocene sites Tabun C and D from Israel but younger than Tarkhantkut, Bolshevik 2 and Nogajsk from the Ukrainian Lower Pleistocene. Basing on the evolutionary level of the vole teeth we assess a late Early to early Middle Pleistocene age (1.0-0.5 Ma) of Hummal.

Ostracods

Johannes Kalbe, Institute of Earth and Environmental Science, University of Potsdam

Several layers of Hummal are rich in valves of Ostracoda. These aquatic microcrustaceans are well established indicators for palaeoenvironmental reconstructions. Preliminary results of the local species assemblage hint to a freshwater fauna, which valves are frequently recrystallised (Fig.4). Further analysis of species distribution and morphological changes of the valves will provide more details about ecological properties of the ancient waterbody and its hydrological changes.

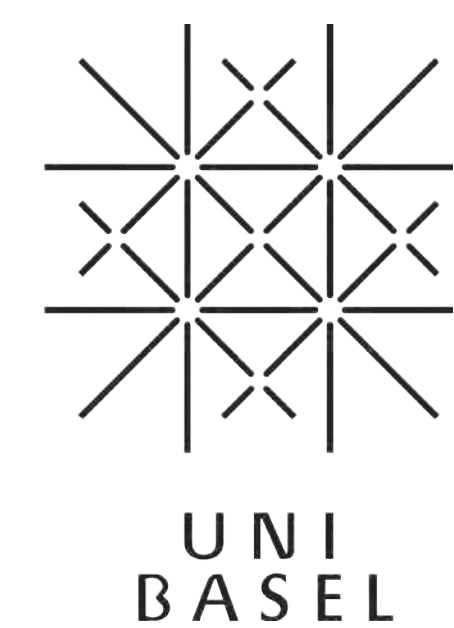


4 Ostracods from the Paleolithic Layers from Hummal: 1 *Heterocypris incongruens* (right valve (RV), external view (ev)); 2 *Heterocypris incongruens* (left valve (LV), internal view (iv)); 3 *Ilyocypris* sp. (LV, ev); 4 *Ilyocypris* sp. (RV, iv); 5 surface detail from 4, with calcite crystals as an indicator for diagenetic recrystallization processes; 6 *Darwinula stevensoni* (RV, ev); 7 *Darwinula stevensoni* (LV, iv)

Aims and challenges

On account of the rich archeological record the site of Hummal has a unique potential for studying human behavior in relation to climate change. A multidisciplinary approach in a variety of fields including paleontology, micropaleontology, geoarchaeology and geochemistry aims at generating a comprehensive paleoclimatic data archive for the El Kowm region. First issue for the ongoing research is on one hand to gather additional field data for all involved disciplines; on the other hand additional absolute dating is required to provide a more precise chronology for the site. Subsequently the palaeoclimatic data from Hummal can be interpreted in a broader context and compared with results from other sites in the Levantine region.

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